

**Apparel Research Network
Upgrade Special Measurement Electronic Order File
Final Technical Report
September 27, 2004**

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Table of Contents

Table of Contents	2
1. Executive Summary	3
1.1 Problem Statement	3
1.2 Scope	3
1.3 Technical Discussion.....	3
1.4 Conclusions	3
2. Introduction.....	3
2.1 Definition of Problem	3
2.2 Scope of Project	4
3. Technical Discussion.....	4
3.1 Task 1 – Expand EOF to All SM Clothing.....	4
3.2 Task 2 – Make EOF More User Accessible.....	4
3.3 Task 3 – Completely Re-write the EOF Program in Microsoft Dot Net	4
3.4 Task 4 – Transfer EOF out of CAR.....	5
4. Conclusion	5
4.1 Accomplishments.....	5
4.2 Benefits	5
4.3 Lessons Learned	6
4.4 Recommendations.....	6
Appendix 1 – Glossary	6

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1. Executive Summary

1.1 Problem Statement

The DLA DPSC special measurement (SM) garment electronic ordering form (EOF) required updating to include all SM items: to make it more accessible and user friendly; to base it on modern Internet software with adequate security provisions; and to enable its transfer to DSCP or Modulant.

1.2 Scope

Add all non-recruit SM garments as determined by DSCP and make the EOF accessible to all customers who have direct or indirect access to the Internet.

1.3 Technical Discussion

The EOF program was completely re-written using Microsoft's dot net Internet software. It was expanded to include all recruit and organizational clothing items as directed by DSCP and its functionality was enhanced to enable more friendly and wider user access. Detailed user documentation was added as well as downloadable forms so they could be completed at remote sites and uploaded later to the Internet. Functionality was added to handle all types of credit cards accepted by the new Warfighter web site.

The completed software was provided to Modulant for connection to the new Warfighter web site.

1.4 Conclusions

All objectives were met to eliminate the problems identified in the problem statement.

2. Introduction

2.1 Definition of Problem

The original web-based SM EOF required upgrading to a modern Internet software platform with adequate security provisions. All SM garments needed to be included and increased functionality was required to make it more user-friendly and extend it to additional users at remote sites.

2.2 Scope of Project

Re-write the EOF software completely in Microsoft's dot net programming language. Retain all original functionality while adding new capabilities to make the system more user friendly and accessible to all retail customers. Add organizational clothing items to the recruit clothing items so SM item coverage is complete.

3. Technical Discussion

The project was accomplished in the following four phases or sub-tasks:

3.1 Task 1 – Expand EOF to All SM Clothing

The original EOF was designed only for recruit centers and therefore only included recruit bag items. The Services wanted all items included and all items are required so DSCP can eventually declare the old manual measurement forms and ordering procedures obsolete.

DSCP produced a list of all SM orders for the past two years and determined the specific new items to add. Existing instructions and body measurements were already available for most new garments. CAR identified new measurement requirements and subcontracted for models to make videos of the new measurement procedures. These were added to the new EOF with accompanying instructions in the same look and feel as the original pictures and instructions.

3.2 Task 2 – Make EOF More User Accessible

The original EOF met or exceeded all expectations of increased customer satisfaction in terms of order fulfillment speed and garment fit quality. However, a number of improvements had been identified that would make the EOF even more supportive of customer needs. These were validated and accommodated in the new EOF design. These improvements primarily consisted of a complete on-line users manual and the addition of static ordering forms so "remote" sites can download instructions, conduct measurements, and upload the measurements later at a central computer. Minor improvements included a new dynamic menu and the capability for users to return to an EOF session at the place they last left it without having to start over. The users manual was written first and added to the old EOF along with additional downloadable documents to make the existing EOF more user friendly.

3.3 Task 3 – Completely Re-write the EOF Program in Microsoft Dot Net

The original EOF program was written prior to the current problems with Internet security and before security measures were available. At the time the decision was made to upgrade EOF, there had been a few security issues, but it was clear that this was quickly becoming a major problem. In addition, the original programming language had become obsolete and could not reasonably be maintained by anyone other than the CAR programmers who had learned to maintain it over the years.

A thorough review was made of all major software available for creating Internet-based programs. Microsoft's dot net software was selected because it was well on its way to becoming the most common Internet software, was fully compatible with the ARN database and software, and provided good security measures.

CAR maintained all the functionality of the old EOF in the new EOF and continued to maintain and run the old EOF for DSCP for the duration of this project.

As requested by DSCP, the capability was added for EOF to accept all types of credit cards accepted by Warfighter as part of the up front ordering officer information.

A minor sub-task was for CAR to provide for integration with other ARN researchers involved in 3D body scanning so electronic measurements could be fed into the EOF to drive SM ordering with minimal manual data entry to complete the SM ordering cycle for customer driven uniform manufacturing. Formats of required input data were provided, but no orders were submitted.

3.4 Task 4 – Transfer EOF out of CAR

At the beginning of this project, the intent was to re-write EOF so the complete operation of the EOF could be transferred to Modulant or DSCP. Once into the project, the decision was made to transfer the new EOF to Modulant while CAR would continue to run the old EOF until testing of the new EOF was completed.

The EOF programmer departed CAR with programming almost complete, but this necessitated a no cost extension to provide time for CAR to bring a replacement programmer on board to complete the project. About this same time it became clear that the new "Warfighter" web site would require new security interfaces, but the final requirements would not be identified for some time. The decision was made that CAR would complete the new EOF program and conduct internal testing, but would not connect it to the new Warfighter. Modulant would connect it to Warfighter when the connection could be accomplished.

CAR transferred the new EOF program and databases to Modulant and continued to maintain the old EOF through the end of this project. No problems were identified by Modulant and CAR continues to operate the old EOF, but with significant difficulty and cost because of increasing security problems.

4. Conclusion

4.1 Accomplishments

The original EOF was successfully re-written in Microsoft dot net programming language, tested, and passed to Modulant for connecting to the new DSCP Warfighter web site. All planned functional and operational objectives were accomplished.

4.2 Benefits

The new EOF will enable all C&T customers who have direct or indirect access to the Internet to order all SM garments electronically. It is on the state-of-the art platform with greatly increased functionality and should easily handle any security problems.

4.3 Lessons Learned

None

4.4 Recommendations

Modulant should complete the implementation of the new EOF software as soon as possible so the benefits it provides can be realized.

The new EOF will provide a greatly enhanced SM ordering system. However, this is only one of five major parts of the complete SM system. The other four parts need to be modernized to provide responsive service to the military services.

1. An effort should be taken to require all customers to use the EOF except for any items that are not included on the EOF.
2. SM order processing at DSCP should be fully automated.
3. All SM pattern modifications should be automated at DSCP or at a third party service provider in the same manner as CAR is currently doing for the dress shirt family of items.
4. Fast-turn manufacturing contracts should be awarded for high-demand SM product families that can be produced by single manufacturers.

Once the new EOF is operational, DSCP should review the possibility of making the old ordering forms obsolete or modifying them to only accommodate SM garments not covered by the new EOF. This will significantly enhance responsiveness to customer needs while reducing quality problems and costs significantly.

Appendix 1 – Glossary

Acronym/Name	Definition
CAR	Clemson Apparel Research
DSCP	Defense Supply Center Philadelphia
EOF	Internet based electronic order form used for ordering SM items.
SM	Special measurement garments ordered with the service members body measurements attached for special manufacturing.